

**Notice of Allowability**

Application No.

10/692,977

Examiner

William J. Klimowicz

Applicant(s)

PINARBASI, MUSTAFA

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2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the preliminary Amendment cancelling claims 1-17 filed on October 24, 2003.
2. ☒ The allowed claim(s) is/are 18-29, renumbered as claims 1-12, respectively.
3. ☒ The drawings filed on 24 October 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 10-24-03
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### **EXAMINER'S AMENDMENT**

An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

(I) With regard to claim 26 (line 35), after the word "actuator," the phrase --positioning means-- has been inserted to remain consistent with the claim language previously recited at line 32 of claim 26.

### ***Reasons for Allowance***

The following is an Examiner's statement of reasons for allowance:

The prior art of record fails to fairly, teach, show or suggest, by either anticipating or rendering obvious, the invention as set forth in the claims of the instant application.

### ***Reasons for Allowance***

The following is an Examiner's statement of reasons for allowance:

The prior art of record fails to fairly, teach, show or suggest, by either anticipating or rendering obvious, the invention as set forth in the claims of the instant application.

Furthermore, a search made does not detect the combined claimed elements as set forth in the pending claims. Additionally, the reasons for allowance of the claims over the prior art of record is believed to be readily clear, self evident and apparent from the claim language set

forth in each of claims 18, 22 and 26 when compared and contrasted with the prior art.

More particularly, the instant invention (as set forth in independent claims 18, 22 and 26) provides for a magnetic read head which has an air bearing surface (ABS), inclusive of a tunnel junction sensor including: a ferromagnetic pinned layer structure that has a magnetic moment; an antiferromagnetic pinning layer exchange coupled to the pinned layer structure for pinning the magnetic moment of the pinned layer structure; a ferromagnetic free layer structure which has a magnetic moment; a nonmagnetic electrically insulative barrier layer located between the free layer structure and the pinned layer structure; and the pinned layer structure or the free layer structure having an oxidized monolayer that is adjacent the barrier layer.

The closest prior art includes Ishiwata et al. (US 6,452,204 B1) who discloses a tunneling magnetoresistive sensor, having a free layer which is *initially* oxidized to form an oxidized layer (e.g., 23a of FIG. 5C); however, not only does Ishiwata et al. (US 6,452,204 B1) fail to specify that the layer is of monolayer thickness (“one atom thick coverage” as defined in the Applicant’s specification at, e.g., page 4, line 1--12 and also known as the conventional definition in the art as indeed being a “one atom thickness in coverage”), the oxidized free layer of Ishiwata et al. (US 6,452,204 B1) is actually reduced (i.e., “reduction” being defined chemically as “[a] reaction in which oxygen is removed from a compound.” See, e.g., [www.dictionary.com](http://www.dictionary.com)) and in the final state, is no longer an oxidized layer, instead it is “reduced so as to again become part of the free layer 23.” See COL. 7, lines 40-41 of Ishiwata et al. (US 6,452,204 B1). That is, oxygen is removed from the free layer after the deposition of the conductive layer (24) (e.g., see *inter alia*, COL. 7, lines 34-41 of Ishiwata et al. (US 6,452,204 B1)).

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Thus, Ishiwata et al. (US 6,452,204 B1) does not disclose such an oxidized portion of the free layer, let alone an oxidized *monolayer* that is adjacent the barrier layer in the manner, function and relationship relative to other claimed structure as prescribed by the independent claims 18, 22 and 26.

Additionally, Ishiwata et al. (US 6,452,204 B1) does not provide, alone or in combination with the art of record or general knowledge within the art, any suggestion or teaching for the invention as set forth in the independent claims 18, 22 and 26.

### ***Conclusion***

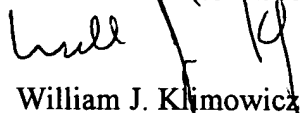
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
William J. Klimowicz  
Primary Examiner  
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WJK